

AMERICAN VETERINARY REVIEW,

FEBRUARY, 1888.

EDITORIAL.

PROFESSIONAL ETHICS IN OUR COLLEGES.—The subject opened by the *Medical Record*—the need for such education is evident more in veterinary than in human medical colleges—its importance to the young veterinary graduate—advice that he needs—how will he enter into professional life?—it is more by didactic advice than by reading that deontology can be learned—if properly carried out, it will do away with many of the unprofessional acts and quackeries of all kinds that the recent graduate, and even the old practitioner, is liable to fall into—it will be a means of elevating the profession. **DR. GADSDEN ON PLEURO-PNEUMONIA.**—The manner in which he claims to have been treated at the Consolidated Cattle Growers' Association—the paper he had prepared, ignored—his opinion as to the contagiousness of the disease sustained by some English authorities—an important observation—the effect it may have in the process of stamping the disease out of this country. **AMERICAN VETERINARY REVIEW PRIZE.**—Our disappointed enthusiasm about the selection of the committee—well declined and warmly accepted—the committee is carefully selected and nominated, anyhow—our thanks to the gentlemen who accepted it—we are now ready to receive the papers—may many come. **PATHO-BIOLOGICAL LABORATORY IN NEBRASKA.**—A good offer from Prof. F. S. Billings—it is already accepted and taken advantage of by veterinarians.

EDITORIAL NOTICES.

PROFESSIONAL ETHICS IN OUR COLLEGES.—Our respected contemporary, the *Medical Record*, in some recent editorial remarks, discusses the existing need in our medical colleges of better teachings in respect to medical ethics. It is not so much of instruction in right conduct, as regards the ordinary relations of life, such as the need of honesty, purity, generosity and the other major virtues, that he speaks, but of the rules and observances which constitute technical ethics, established courtesies and the minor morals, manners and conducts of professional life.

The pressing need of such an education must be evident also, in our own profession, and especially in veterinarian circles on this side of the Atlantic.

It needs but little observation to discover how little the average veterinary graduate knows of the finer observances of true conventional courtesy toward other members of the profession which he has adopted, or towards his colleagues, his patrons, his patients or his fellows in any sense. Indeed, how many of the elders of the profession are competent to become the mentors of their junior brethren in the conduct of life generally?

An immediate want of the young graduate who has just received his diploma is his card. In what style does he intend to have it printed?—here is a formidable question. He is about to make a start in practice; to enter into the imminent fight for a useful and successful career. How shall he announce himself? What shall be his first step in veterinary life? He is about to meet with older practitioners: what is going to be his reception from them, and what must be his deportment toward them? Consultations will take place over serious cases; what are his respective duties when he is the party consulting, and what when the party consulted? Questions of principle touching methods of living, of policy, involving questions of conscience and integrity, the demands of reputation and honor; habits of frankness or of deception—these questions must be daily encountered and disposed of—how will he know the right way and adhere to it; how shall he detect the wrong way and avoid it?

As the Editor of the *Record* says: "professional deontology is of as great importance and value in the education of the veterinarian as of the human physician;" and as the training of our veterinary rising generation by formal conventionalities and written rules is an innovation not to be expected if, it is, indeed, to be desired, the duty naturally and properly devolves on the teachers, whose influence is supposed to be, and ought to be, if not paramount, at least powerfully salutary and positive on the side of whatever rules and observances, either implied or codified, that shall tend to the tempering and polishing of the habits and manners of GENTLEMEN of any profession. And it is only when sug-

gestions such as these shall be realized, and such a course inaugurated, not by a long series of didactic lectures, but by good, practical, honest common-sense counsel and example, that we shall see the last of the pompous business cards ; the engraved advertisements ; the manufactured newspaper notoriety ; the stealing of patients ; the discrediting and disparaging the names of colleagues ; the assumption of false titles and degrees ; the bombastic display of diplomas ; the pretense of transcendent skill in deceptive specialties, and so on, and so on, *ad nauseum*.

These things and such as these, are to-day the opprobrium of our profession, (as of sundry others) and tend more or less to smirch the good name and soil the honorably-acquired repute which belongs to the upright, intelligent, conscientious, skillful and trustworthy GENTLEMANLY VETERINARIAN.

Our remarks are desultory and hasty and might be bettered in the arrangement, but they will be understood.

DR. GADSDEN ON PLEURO-PNEUMONIA.—That the subject of pleuro-pneumonia has been considered, debated, discussed and reviewed to the verge of exhaustion if not, indeed, a little beyond it is a fact in veterinary literature of which no veterinarian can be ignorant. On this continent it would seem that no assemblage of persons can be convened for any purpose connected with cattle-questions, and composed of cattle owners and breeders, where the smallest opening can be found for the discussion, in which it does not find its place ; and it makes it a large one, for dissertation and inquiry. It is always in order, and even if it were not so, would compel attention, *nolens volens*, if no otherwise. And it would be vain to attempt to disparage the interest or be little the importance of the subject.

At a recent meeting of the Consolidated Cattle Growers' Association, which also included a number of veterinarians, the subject of pleuro-pneumonia had, of course, a place on the programme of the proceedings.

The Bureau of Animal Industry was well represented by its chief, Dr. E. Salmon and others, and several other veterinarians were present, among whom was Dr. J. W. Gadsden, who for several years past seems to have devoted the greater part of his

professional attention to the subject of the bovine lung plague, and who was desirous of expressing his views. He had a paper on the subject, in the preparation of which he had taken considerable pains.

Dr. Gadsden, for some reason, which has not been made known to us, and which he believes consisted in the nature of the facts which he had gathered, and which, though sustained by his own observations, were not acceptable to those present, failed to obtain permission to read the paper he had offered, and consequently no discussion of his views could be had.

These statements, and the theory involved in them, communicated to us by the Doctor, are, we believe, of sufficient interest to lay before our readers. If, as the Doctor contends, sustained by the opinion of such high English authorities as he has named, the contagion can only be communicated by contact with the living diseased animal, the sanitary regulations for the eradication of the disease will become considerably simplified, and the possibility of its extermination throughout the country almost become an established future event. The observations of Dr. Gadsden, and of Professors Williams, McCall, Walley and others ought not to be ignored and certainly those who have had as large a connection with the work relating to pleuro-pneumonia in the United States, for the last eight years, as Professor Law, Dr. Salmon, Professors McLean, Michener, Dr. Wray, and others, have had sufficiently abundant opportunities to observe the various modes of infection, to enable them to refute from their abundant experience, the theories of those who hold with Dr. Gadsden that the living subject of the disease is about the only efficient agent of its dissemination. The discussion and re-adjustment of a question involving interests so extensive in a manner so revolutionary, if it is indeed to be so re-adjusted as to land us so far from the position held at present, is a matter of great importance and should be gravely considered.

The subject of pleuro-pneumonia occupied much of the time at the last International Veterinary Congress, held in Brussels in 1883, and the idea was generally admitted that the living animal was not the only agent existing for the emission of the virulent principle, but that it might also emanate from the cadavers

or from the tissues which formed the seat of the symptomatic lesions of the disease, and also from many other sources of diffusion. How wide the divergence between Dr. Gadsden's views and these!

AMERICAN VETERINARY REVIEW PRIZE.—We suppose that our readers, as well as all other members of the veterinary profession in the United States, are aware of our offer, published in our December issue, of a special prize for the best **ORIGINAL** paper furnished in competition, for publication in the **REVIEW**, the premium to be awarded upon the verdict of a committee of five veterinarian practitioners, to be selected from the ranks of the profession in the United States at large.

In the simplicity of our enthusiasm we were led to believe that our object would be so immediately appreciated, and we should so promptly awaken the generous sympathies of our brethren, that the process of obtaining the necessary jury, as in some of our current exciting criminal trials, would be one of rejection rather than of selection, and might involve the danger of seeming to slight a few of our good friends by making some more or less invidious distinctions in excluding them from the committee; and so we have trembled, somewhat, over our apprehended *embarrasment du choix*, as we have thought the thing over. We wanted barely five men, out of all the veterinarians in the country (leaving out, of course, the crowd of intending contestants, whose number we refrain from attempting to estimate), barely *five men*, willing and consenting to respond to our appeal for co-operation and help by contributing the weight of their reputation and influence in behalf of a measure which could not well fail to benefit the profession of their choice, with but a trifling expenditure of time and thought. And so we opened a correspondence with certain of our colleagues, with an expectation of being soon able to announce the composition of our committee of selection. Then we began to discover the extent to which we had erred in failing to count on the wonderful facility with which, under the most plausible of pleas, such a request could be declined and evaded. In some cases the declinations were conveyed in terms so nicely chosen that it was almost a pleasure to be disappointed and

refused, and sometimes our appeal has not been so much as recognized (unless our failure to receive replies is due to our neglecting to apply to the dead letter office).

But all this matters little or nothing now. We have offered the prize, and the prize is still offered, and we have a committee, and it is the right kind of a committee. And in announcing its composition we take sincere pleasure in tendering our truest thanks to the gentlemen with whom we shall co-operate in the matter in hand. They are gentlemen whose names and standing will be sufficient to give value to whatever opinions they may unite in expressing. Our appreciation of their kindness in accepting our invitation to become judges in the matter is enhanced by the difficulties we have encountered, and their colleagues at large should honor them for their professional devotion and disinterested service.

Here are their names: Prof. R. Huydekoper, of the Veterinary Department of the University of Pennsylvania, as chairman; Dr. J. C. Myers, Sr., of Cincinnati; Dr. A. A. Holcombe, State Veterinarian of Kansas; Dr. L. Howard, of Boston, and Dr. D. J. Dixon, of Hoboken, New Jersey.

We are now prepared to receive the competing papers, and once for all beg to repeat the conditions of admission to the contest: The papers are to be delivered to the REVIEW before the first of April, 1888; each paper is to be distinguished by a special motto, and accompanied by a sealed envelope enclosing the name and address of the author, and endorsed externally with the distinguishing motto for identification.

The decision of the committee will be made public as soon as it shall have reached the editorial rooms of the REVIEW.

PATHO-BIOLOGICAL LABORATORY OF NEBRASKA.—In the REVIEW for January we published a letter from the Director of the Patho-biological Laboratory of Nebraska, in which the facilities of that institution were liberally placed at the disposal of such graduated physicians and veterinarians as might desire to pursue a course of study in that special department of scientific research. Such an offer is characteristic of Professor Billings, and is no less than we should expect from that source, and we are glad to hear that

advantage has already been taken of his offer, and that he has a number of students profiting by his instructions. The Doctor is well equipped for the difficult work of biological investigation, and we are sure that no one who follows his teaching can fail to receive benefit and gratification.

NOTICES.—We would be thankful to any of our friends who may have duplicate numbers of the issue for July, 1887, if they would kindly return them to us.

As we are approaching the end of our eleventh volume, we beg to ask our readers to inform us of their desire to continue their patronage by renewing their subscriptions promptly. We also request those who have failed to remit the amount of their dues, to do so at once by sending a post office order to *Station G*. In complying with these suggestions, our friends will assure themselves a prompt delivery of their journal.

ORIGINAL ARTICLES.

FOOT-AND-MOUTH DISEASE

AS IT AFFECTS MAN AND ANIMALS, AND ITS RELATION TO HUMAN SCARLATINA AS A PROPHYLACTIC.

ALSO, REMARKS UPON THE TRANSMISSION OF HUMAN SCARLATINA TO THE LOWER ANIMALS, AND THE USE OF VIRUS THUS CULTIVATED AS A PREVENTIVE AGENT.

BY J. W. STRICKLER, M.S., M.D., ORANGE, N. J.

(Continued from page 450.)

Believing, however, that in the evidence furnished by the "Dover epidemic" there was an indication of what might possibly be accomplished by the use of the virus of foot-and-mouth disease as a preventive of human scarlatina, I made further experimental investigation, as follows:

With some virus (contents of vesicles) taken from cows having a mild form of foot-and-mouth disease, I inoculated three children, and subsequently exposed them to scarlet fever contagium. The histories given briefly will show the results:

CASE I.—M. M.—, about eight years of age; had never had

scarlet fever. On January 12, 1884, I injected under the skin of his arm a small quantity of the virus. A short time thereafter the cervical lymphatic glands became enlarged and tender to the touch. There was no marked systemic disturbance, neither was there any sore mouth or throat. All signs of glandular enlargement and tenderness had disappeared in six or seven days. He was then taken to a house in which there was a boy sick with scarlet fever. The disease was in the desquamating stage and the throat still sore. His parents being poor, the pillow upon which the patient lay had not been exchanged for a clean one since the beginning of the sickness. This pillow was placed over the face of the boy who had been inoculated, and held there some time. He was then made to inhale the breath of the patient, and afterward to remain some time in the sick room. The boy did not develop scarlatina after having been thus exposed, neither has he contracted the disease since, although there has been opportunity for infection.

CASE II.—B. P—, aged four years; had never had scarlatina. On March 6th I inoculated her in the arm (hypodermically) with a small quantity of the foot-and-mouth virus. On 13th her temperature rose to 103° F. Her mouth was sore, without showing any vesicles, and she complained of a pricking sensation in her throat. She had slight headache, the appetite was impaired, and she was quite peevish. There was no eruption at any point on the body. By March 20th she was well. She was then taken to a house where I had a patient in the desquamating stage of scarlet fever. The patient was very sick at the time because of complications; indeed was so ill that I felt somewhat doubtful about the issue. The same plan of exposure was adopted as in the first case, although I could not succeed in getting the inoculated child quite near enough to the patient to inhale her breath; but the "pillow exposure" and the length of time she was in sick room afforded a good opportunity for infection. She did not subsequently develop scarlet fever.

CASE III.—J. M—, aged ten years; had never had scarlatina. I inoculated him just as I did the first two. He did not afterward develop any systemic disturbance or local lesion. After a

lapse of three years, with opportunity for infection, he tells me he has not had scarlatina.

The results thus obtained, especially when taken in connection with the data furnished by the statistical table, seem to furnish some reason for believing that, for a time at least, the virus of foot-and-mouth disease is protective against the contagium of human scarlatina. But I am well aware that at this stage of the investigation conclusions cannot, ought not to be advanced, and until further information can be obtained by careful experimental investigation, nothing absolute or positive should be said concerning the practical issue above alluded to. While foot-and-mouth disease, as it affects man, is in many respects the exact counterpart of the disease as it occurs in cattle, yet there are certain points of difference, and in order to make them apparent a brief description of the latter affection will be given. The disease (as it affects cattle) may be defined as a very contagious and infectious affection, characterized by an eruption of vesicles or blisters in the mouth, on the internal surface of the lips, sometimes in the nostrils, on the teats and udder, between the pedal digits and around the coronets, and sometimes in the lactiferous ducts. It passes through four different stages, viz.: fever, eruption, ulceration, desiccation and desquamation. The symptoms of these four stages or periods are as follows:

First Period.—Before any perceptible alteration has taken place in the ordinary habits or condition of the animal, the thermometer indicates an increase of temperature, which generally ascends to 102°, and as high as 104°, or even 107° F., in from one to two days, and does not descend to any extent until the end of the eruptive period. The next indication is dullness, inappetence and slight shiverings. The muffle becomes warm and dry, the eye is tearful, and the mouth hot and inflamed-looking in places, and frequently sore when handled, the membrane being covered with viscid mucus, which flows in stringy masses from the lips. There is grinding of the teeth, and a smacking or clicking noise; the breath has a fetid odor; rumination ceases, and the prehension, and often the deglutition of food is painful; the animal preferring to dabble its mouth in cold water. Not infrequently,

when the feet are beginning to inflame, the animal stands uncomfortably, drawing the limbs together, or jerking them up suddenly under the body, arching the back, and pawing; the movements are reluctantly performed, and the coronets hot and sore. There is also slight constipation, and, if with a milch cow, the secretion of milk is gradually diminished, and that fluid assumes a yellow tint; in the majority of cases it is nearly or altogether suspended. *The udder becomes red and tense* when it is involved, and the teats swollen and painful to the touch. This stage usually lasts from twenty-four to forty-eight hours, according to the intensity of the fever.

Second Period.—After the time above mentioned the eruption begins to appear in those parts which are to be its seat, and the fever commences to abate in many cases. When the mouth is chiefly affected there are seen on its lining membrane, and particularly on the upper lip, gums and sides of the tongue and palate, white or yellowish-white blisters, the size of a grain of millet to that of the size of a pea or nut, their form being very irregular. Sometimes they are discrete, or scattered over the surface; in other cases they are confluent, collectively forming patches which are at first gray or yellow, and afterward white; slightly convex; each vesicle is usually circular; the smallest are seen on the muffle. In the mouth they are largest, and most frequently confluent; but there they only exist for a brief period, the friction caused by the movements of the tongue tearing them; the epithelium is detached in flakes of variable dimensions, leaving unhealthy ulcers or denuded spots, or "erosions" of a bright red tint, which contrasts markedly with the gray hue of the surrounding surface. These shreds are often seen adhering to the border of these sores; and if on the tongue, that organ is kept continually moving to get rid of them, and the animal emits a smacking sound with its lips. At this stage of the disease the papillæ of the tongue are congested and prominent. Where there is no friction the vesicles do not rupture within one or two days. On the udder the vesicles are somewhat different. *The teats are most frequently their seat*, and it is not unusual to find the phlyctenæ grouped in a circle around their orifice; when isolated on the surface of the

organ they are surrounded by a pale-red circle, and when confluent they are very irregular and variable in number. In the case of a cow the alteration of the milk is very striking. It coagulates on being boiled, or when its temperature is only slightly raised. It also becomes yellow in color and acid in reaction.

When the limbs are affected the heat and redness of the coronet are most noticeable toward the heel and interdigital space of one or more feet. The coronet swells; the animal is lame, and prefers to maintain a recumbent position. In one or two days the vesicles are developed at the points indicated, most frequently earliest in the interdigital space; at first they are small, but they increase in size until they are as large as a bean or small nut, and extend round the claws, often becoming confluent, the contents appearing as a yellow limpid fluid. The skin of the part assumes a bleached aspect, and is soon covered with a kind of cheesy matter, resulting from the inspissation of this fluid, which emits an ammoniacal odor. In some cases the skin around the base of the horns becomes inflamed at the same time as that of the mouth or feet, and the horns are loosened. Occasionally, also, a vesicular eruption manifests itself at the orifice of the vagina, at the perineum and anus, or in the nostrils; and it sometimes happens that the eyes are affected, the conjunctival membrane becoming inflamed and suppurating, and phlyctenæ forming on the cornea. There may also be nasal catarrh and symptoms of gastric derangement.

Third Period. This is the aphthous stage of the disease, and begins when the vesicles have ruptured, and the epidermis being removed, erosions appear. This does not occur everywhere at the same time, but varies according to the region. In the mouth it soon occurs, owing to the movement of the tongue, and also in the feet by that of the claws. On the udder it is later, seldom occurring before thirty-six or forty-eight hours; or if the disease is benignant the vesicles on this organ may not rupture at all, their contents becoming absorbed, and the pellicle of epidermis covering them sealing off when cicatrization has taken place beneath. When the vesicles do break, there remains a little, bright-red sore, which is smooth or granulating, and is soon covered with

a fluid pus mixed with epithelial cells, which in drying forms a thin reddish crust that protects the erosion until it heals. In the mouth and on the lips the vesicles are broken almost as soon as formed, leaving circular or irregular bright-red sores which bleed readily, their rupture being indicated by dribbling of saliva streaked with blood,

It sometimes happens that when the tongue is seized to explore the mouth, large patches of epidermis come away in the hand, as if the tongue had been boiled. In some rare cases an exudation of yellow color and cheesy consistency is observed toward the root of the tongue, due to epithelial proliferation.

The fever has greatly subsided, but the thirst is intense, and the animal eagerly drinks water or gruel, though, owing to the soreness of the mouth, it can eat but little, especially if the food be dry and hard; consequently the loss of condition is rapid.

Fourth Period. This is marked by the desiccation or drying up of the aphthæ, and the formation of new epidermis. The crust falls off, and new epidermis or epithelium appears as a thin lead-colored pellicle. There is also at this time a general desquamation of the cuticle, and this is invariably the case. There is also a good deal of itching of the surface (Walley). With the completion of these processes all traces of the disease disappear. There is no lameness, the appetite has returned, and the former condition is being restored; while the secretion of milk, which may have been greatly diminished—perhaps to less than one-third—becomes augmented, and regains its normal properties.

Bollinger states that "in animals which have once acquired the disease the susceptibility ceases for a considerable period, or at least becomes very slight. Repeated attacks of the malady in the same animal are, upon the whole, rare." That the susceptibility ceases for a time has been demonstrated by Dr. E. Klein, of London, England. He inoculated five sheep with active cultivations of the micrococcus, but without producing any definite local or general lesion. "Subsequent feeding of these same sheep with the active micrococcus had no result." From this he argues that a previous subcutaneous inoculation with the micrococcus provides the animals with immunity against the disease. Dr. Klein also claims

to have discovered the germ peculiar to this disease. His method of investigation was as follows: He inoculated alkaline peptones, broth, and solid agar-agar, peptone broth mixture, solid nutritive gelatine mixture, and milk, with lymph which was obtained from the vesicles of diseased sheep. He discovered after a few days, a thin film, limited in extent, upon the surface of the solid media at and near the point of puncture. The film gradually spread, presenting a very characteristic appearance, namely *a collection of closely packed minute granules* or droplets. These enlarge slowly and gradually, and become whitish and translucent in character. If the point of a needle or platinum wire be moistened with the lymph and pushed into the solid medium, the line of puncture becomes marked as a linear aggregation of minute granules or droplets after several days or weeks. There is also, in addition to this, on the surface of the culture media the film of granules already alluded to, which starts from the point of inoculation. This micrococcus grows very slowly, the first indication of its growth in solid nutritive gelatine mixture, at a temperature of 18° to 22° C., becoming visible under a lens at the end of from five to eight days, or still later. The growth thus developed appears in the form of a small cluster of transparent granules. In agar-agar mixture, kept at 35° to 38° C., the growth is sooner visible, although, after six or seven months, "in all media and under all conditions the growth remains of limited extent." When milk is inoculated with the micrococcus, and kept at a temperature varying between 35° and 38° C., the growth is found to progress very slowly. The condition and natural appearance of the milk are not changed. No curdling occurs, but the reaction becomes acid. The micrococcus forms in artificial media dumb-bells (diplococcus) and beautiful chains (streptococcus). These vary in length according to the number of micrococci composing them, "the short chains being a linear series of four, six or eight micrococci, the longer ones of more than eight up to thirty and more micrococci." The longer chains are always curved, and even convoluted.

The above mentioned characteristic appearance of the growth is owing to the presence of smaller or larger masses of chain mat-

ted together. Subcutaneous inoculation with artificial cultivations produces no perceptible disorder, but by feeding sheep with a twentieth generation the typical disease has been reproduced, viz., vesicles and ulcerations upon the feet. From the vesicles of such animals lymph was obtained which, on cultivation, yielded the same micrococci, characterized by the same slow growth and the same typical appearance as those used for the experiment. Dr. Klein claims, therefore, that there can be no question about the identity of this peculiar micrococcus with the cause of the disease.

The description thus given of the mode of growth and appearance of the micrococci of foot-and-mouth disease does not materially differ from that given, by the same investigator, of the micrococci found in the ulcers of cows affected with a disease which has since been determined to be cow scarlatina. For the sake of instituting a comparison, I will quote his own words with reference to the cultivation and appearance of the bovine scarlatinal streptococcus.

"From the deeper parts of an ulcer of cow IV. (one he had under observation) material was obtained, with which tubes containing either solid nutritive gelatine or agar-agar mixture were inoculated. After some days, and in both media, a micrococcus appeared, the growth of which was extremely characteristic. These are its characters in the nutritive gelatine: After three to six days' incubation at 20° C., the growth made its appearance at the point or line of inoculation, in the form of small points or granules, whitish in color, and tolerably closely placed. During the next few days their number and size increased. At the end of a fortnight the line of inoculation was visible as a streak of whitish granules or droplets, some large, others small, more or less closely placed. On the surface of the gelatine the growth, like a film of granules, spreads slowly in breadth, but even after months remain small. When inoculated into the depth of the gelatine the channel of inoculation becomes visible as a whitish streak, made up of smaller and larger droplets. The gelatine is not liquefied by the growth. The same characters are assumed by the growth in agar-agar mixture, and in solid serum. The general aspect of the growth in gelatine, in agar-agar, and in serum, is very

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similar to that presented by the streptococcus of foot-and-mouth disease, but with this difference, namely, that in gelatine tubes the streptococcus of foot-and-mouth disease is a little faster in its growth, and its component granules are a little more distant. Nevertheless, I have tubes of both kinds of organisms in gelatine, and in agar-agar tubes, which cannot be, from their general appearance, easily distinguished. In faintly alkaline broth, or in broth and peptone, the micrococcus of the cow ulcers grows readily, and in the same manner as that of foot-and-mouth disease. But there is one test by which the two kinds of organisms can be very easily distinguished: the streptococcus of foot-and-mouth disease, when grown in milk, does not affect the fluid character of the milk, whereas milk inoculated with the organism obtained from the cow ulcer, will, if kept for two days in the incubator at 35° C., have been turned completely solid. This difference is a very striking difference, and a few days growth in milk suffices for distinguishing without fail between the two. The microscopic examination of a culture in broth peptone, in gelatine, or in agar-agar mixture, shows that the growth consists of spherical micrococci, arranged as diplococci, and as shorter and longer, straight, wavy or curved chains—streptococcus—these latter sometimes of great length.

As regards the shape of the micrococci, the mode of their division, the branchings of the chains, the presence here and there in the chain of a large element among the smaller ones, the organisms of the ulcers hardly differ from the description which I am preparing of the streptococcus of foot-and-mouth disease.* It will be observed that the only point of real difference is the effect the growth of the streptococcus of the cow ulcer has upon milk, solidifying it, while the streptococcus of foot-and-mouth is asserted not to produce this effect. In connection with this point the following may be quoted: "But there is one point, in which, so far as I know, it (the milk) differs from all other milk, and that is in its coagulation on being boiled, or having its temperature only slightly raised by being mixed with hot gruel," etc. (Edin.

* Report on Milk Scarletina to the Local Government Board, by Dr. E. Klein, London, England, 1886.

Med. Journal, 1863, p. 711.). "It is a very general opinion among continental veterinarians that, when the milk can be boiled without coagulating, it is no longer dangerous to use; and Hilderbrandt, in Magdeburg, expressly states that he never observed a single case of injury to health from the use of milk which had been boiled without coagulating." (*Gurlt u. Hertwig's Magazine*, vi., p. 179).

It is certainly true that the two diseases ("foot-and-mouth disease" and the "Hendon cow disease") are very similar in some of their clinical features. This will be made manifest when the mode of development and subsequent history of the vesicles which are characteristic of the two diseases shall have been compared. In the following notes some points of similarity between these two affections may be incidentally noted.

When at Deering, Me., some time ago, for the purpose of studying foot-and-mouth disease in cattle, I saw one or two cases which could very easily have passed for "bovine scarlatina," as described by Drs. Klein and Cameron. The vesicles and ulcers upon the teats and udder were the exact counterpart of the word-picture of those seen upon the Henden cows' udders and teats.

Just here I may say that during the last four years I have been endeavoring to determine: 1st, Whether scarlatina can be generated in the lower animals by inoculation with human scarlatinal virus; 2d, if so, whether such a disease is mild in character; 3d, whether virus furnished in such a manner could, by inoculation, be used as a means of preventing the development of scarlet fever in human beings.

To determine the truth concerning the first inquiry I obtained some blood from a patient who had scarlet fever, and injected thirty drops of it into the right jugular vein of a colt about one year old. I also introduced under the skin of the thorax a blood-clot obtained from the same patient, and caused the colt to swallow about two drachms of pharyngeal mucus. This occurred on May 1, 1883. The temperature gradually rose from $101\frac{1}{4}$ ° F. (the temperature of the colt before inoculation) till it reached, on May 12th, $102\frac{1}{2}$ ° F. During the following night the colt lacerated the skin of the chest to a small extent, and immediately thereafter

the temperature began, or continued to rise till it reached $103\frac{1}{2}$ ° F., at 8 p.m., May 13th. The temperature then began to fall, till it stood at $101\frac{1}{4}$ ° F., May 16th, at 3 p.m. During this time the intermaxillary glands became enlarged and sensitive, the mucous membrane of the nostrils and eyes injected, and from the nostrils there was a discharge of ropy mucus. Thinking that the injury received on the 12th might have interfered with the natural action of the virus by causing a local inflammation and a general rise of temperature, and wishing, if possible, to intensify the effect of the first inoculation, I injected into the jugular vein some pharyngeal mucus from two well-marked cases of scarlatina. The result was an increased redness of the mucous membranes of the nose and mouth, and a mild sore throat, which disappeared with fading of the redness of the mucous membranes. The symptoms above given almost entirely disappeared by May 24th. There was no subsequent oedema of the extremities or sheath, nor was there any desquamation of the cuticle.

On June 28, 1883, I enveloped the head of a perfectly healthy colt in a bag containing a chemise which had been worn by a scarlet fever patient. This I allowed to remain adjusted about seventy-two hours. On July 2d I injected into the left jugular vein, and into a vein in the leg, some human scarlatinal blood. Within forty-eight hours the temperature began to rise, the colt became less active, showing a tendency to remain quiet. On the sixth day (July 8th) she began to cough and swallowed with difficulty. The visible mucous membranes were quite red, and at certain points had somewhat the appearance of the mucous membrane of the pharynx in man when affected with scarlet fever. The intermaxillary glands were enlarged and sensitive, and, when the throat was pressed upon, the colt evinced uneasiness. There was a discharge of tenacious mucus from the nostrils. The pharynx was unnaturally red. On July 9th I introduced some epidermal scales, obtained from a scarlet-fever patient, under the skin of the abdomen, but so far as I could determine they produced no effect. In this case there was a desquamation of the skin at a few points where I had not previously seen an eruption.

In both colts there followed the inoculations, sore throat

ness of the mucous membranes of the nostrils, mouth, and pharynx, elevation of the temperature above normal, and in one, desquamation of the cuticle. It seems reasonable, therefore, to believe that a specific disease was produced in both instances, and that the specific disease was scarlatina. Since that time I have inoculated rabbits, dogs, guinea-pigs and cattle with human scarlatinal matter, and have obtained some very gratifying results, especially in cattle. In May, 1883, I inoculated a calf with human scarlatinal virus by injecting into the general circulation some blood taken from a well-marked case (a young man with a typical eruption on neck, chest, abdomen and limbs), and by subcutaneous introduction of the blood into the abdomen. After the lapse of a few hours the skin at and near the point of inoculation (abdomen) became uniformly reddened. The elevation of temperature was very slight. The redness and sensitiveness of the skin increased until May 24th, when I discovered pus at the centre of the area of redness. The temperature at that time was $102\frac{1}{5}$ ° F. The visible mucous membranes were not affected. Recovery complete by June 1st.

Knowing that cows recently calved were supposed to be especially susceptible to scarlatinal contagium, I procured one that had aborted about one week prior to the time of purchase. I inoculated this cow in the udder with some pharyngeal mucus taken from a patient sick with scarlet fever. The day following the inoculation the temperature rose to 102° F.; pulse 48. On the third day the temperature was 102 $\frac{2}{5}$ ° F.; pulse 56. The temperature then began to descend till it reached 101 $\frac{1}{4}$ ° F. on the eighth day. During this time a cough developed, and it was noticed that the animal did not swallow with the same readiness as usual. At the point of inoculation had developed a superficial vesicle, which very soon became filled with purulent contents. Still deeper in the tissues a small abscess formed, which, after discharging its contents remained open, discharging a small amount of pus. The skin around the seat of the vesicle and abscess was quite intensely reddened. The temperature gradually declined, till finally, on the nineteenth day, it fell to 100 $\frac{1}{4}$ ° F. There was a desquamation of the cuticle near the abscess where the skin had been reddened.

The next cow I inoculated was in the third or fourth month of gestation. The inoculation was made in the udder, and with pharyngeal mucus from a typical case of human scarlatina. Twenty-four hours after the inoculation the temperature began to rise, although slowly. On the second day the thermometer showed a temperature of $101\frac{1}{2}$ ° F., and it did not vary from this point till the seventh day, when it fell to 100° F. During this time the udder became reddened, swollen and tender, and finally suppurated at the point of inoculation. After the pus, which was small in quantity, was allowed to escape, the cavity of the abscess continued for a few days to discharge pus and then gradually healed. There was no sore throat, nor alteration of the mucous membranes. The reddened integument of the udder around the abscess desquamated. A subsequent inoculation of this cow with human scarlatinal virus produced no effect.

I next inoculated a calf with pharyngeal mucus and epidermal scales derived from scarlatinal patients. The inoculation was made in the abdominal region. At the point of inoculation there very soon appeared a vesicle about as large as a lima bean, which was at first quite clear, but later became filled with sero-purulent matter, and then became yellow in appearance. Coincidentally with the development of the vesicle there was an elevation of temperature, and the appearance of an intense redness of the skin for some distance from the point of inoculation. There was no sore throat. As I wished the contents of the vesicle as a virus with which to inoculate some children, I punctured it, collecting the fluid in a small bottle. After being punctured the vesicle became converted into an ulcer, which gradually healed. The skin near this vesicle desquamated after the redness disappeared. I am led to believe, as a result of what I have seen while experimenting thus with cattle, that it is possible to infect them with human scarlatinal contagium.

To answer the second question, I may say that, so far as my experience serves me, the lesion produced in the lower animals by inoculation with human scarlatinal virus is a mild one. I am aware, however, that it *might* be otherwise.

In a recent letter, Dr. E. Klein, of London, England, whose

reputation and skill as an investigator place him very high in our esteem and confidence, tells me that cows inoculated with scarlatinal micrococci of human source become affected in *precisely* the same manner as the Henden cows had been. The disease he refers to has the following characteristics, viz.: Upon the teats and udder vesicles or bullæ appear, from five to seven days after the commencement of the disease. In number they vary from two to four on a teat, and range in size from a pea to a horse-bean, and contain as first a clear fluid. The first vesicle frequently appears between the two fore teats, close to the abdominal vein. These vesicles usually become broken in milking, leaving raw sores, sometimes red, in other cases pale in color, with raised, ulcerated-looking edges. Shortly after the vesicle becomes ruptured a brown scab forms upon the sore. A thin watery fluid exudes from under the scab. The skin about the eyeballs is puffy, and is said to present a minute red eruption or rash. There is also an eruption on the hind-quarters. This eruption in its later stages consists of patches of eczematous-looking crusts, which, when picked off, leave a raw, moist sore. The hair comes away with the scab. There is no pitting of the skin. There is sometimes a discharge of yellow matter from the nostrils and eyes. The fever is moderate. Sore throat is said to occur in severe cases. The bowels are loose in very acute cases. There is a dry, husky, irritative cough, with bronchial rales and quickened breathing in some cases. In December, 1885, it was reported that a sudden and extensive outbreak of scarlet fever had occurred in South Marylebone, and that it appeared to be associated with the distribution of milk from a particular retailer. It was afterward discovered that the milk was obtained from cows affected with the disease just described. There were in all about one hundred cases of scarlet fever caused by drinking the infected milk. If, then, it be true that the Henden cows furnished a contagium which caused the development of genuine scarlatina in about one hundred persons, it must be true that the cows had scarlatina; and again, if the inoculation of cattle with human scarlatinal virus produces a disease identical with the Henden cow disease, it follows that scarlet fever can be generated at will in susceptible animals.

I have found that results I obtained in several instances are greatly strengthened by the recent experimental investigations of Dr. Klein as to the nature of the Henden cow disease, and its connection with the outbreak of scarlet fever at South Marylebone and in a certain district in London. The vesicles upon the udder of the cow and the abdomen of the calf already alluded to, as well as the general course of the disease, as occasioned by inoculation with human scarlatinal virus, correspond with the description of the disease as seen in England.

The answer to the third and most important question may perhaps be suggested in what follows :

In the early part of the year 1883 I inoculated twelve persons with virus obtained from horses supposed to have scarlatina. Since that time not one of that number, so far as I can learn, has had scarlet fever. These twelve persons were also inoculated with human scarlatinal blood after they had been inoculated with equine virus. During the summer of the same year I inoculated thirteen children, all of whom had been, and were at the time of inoculation, exposed to the influence of air contaminated by the breath and exhalations of scarlatinal patients. Five of this number escaped, the remaining eight developed the disease (scarlatina) very soon after inoculation, in one instance within five hours. Four of the eight cases had no angina, but simply the eruption, with slight disturbance of the stomach. They were not confined to bed one hour. None of the cases were severe.

During the last year I have inoculated two children with the contents of a vesicle produced in the abdomen of a calf by inoculation with virus derived from a patient who had scarlet fever. The notes of the first case are furnished by Dr. Stubbert, of Bloomfield, N. J., who watched the patient from day to day after the inoculation. "On April 25th the child was inoculated in the left arm with scarlatinal matter taken from a calf. On the 27th an erythematous blush appeared about the scarification. By the 28th the blush had disappeared, but a scab had formed, and around its puffed-up border there was a red areola. On April 30th the child had quite a high fever. On May 1st there appeared on the upper part of the chest a rash similar to a scarlatinal rash. On

May 2d the scab came off. The rash which began on the chest spread to the arms. On May 3d the rash was less bright, and on the right shoulder there was evidence of a slight exfoliation of the skin. In three or four days after this the child was restored to perfect health." The second child was inoculated in the presence of Dr. Stubbert, who kindly permitted me to test the virus not only in this, but in the previous instance. The only result I obtained in this second case was a slight erythematous blush, which, after existing two or three days, gradually disappeared. There was no systematic disturbance. With scarlatinal virus modified by transmission to the cow, I inoculated two other children, producing in them a distinct local lesion. These children have not since developed scarlet fever, although the disease has existed in their immediate neighborhood, and they have been more or less exposed to its influence. While the subject-matter of this paper thus presented to you does not furnish a positive answer to the question, "Can we prevent the development of scarlet fever by the use of virus obtained in one of two ways, as indicated above," it does offer some truthful statements which suggest an answer, and which, I trust, will incite the profession to aid me in the further prosecution of this very interesting and important line of investigation.

CONTAGIOUS PLEURO-PNEUMONIA.

HOW THE CONTAGION OF PLEURO-PNEUMONIA IS COMMUNICATED, WHY THE DISEASE HAS NOT BEEN EXTERMINATED, AND THE ONLY METHOD BY WHICH IT CAN BE ERADICATED.

By J. W. GADSDEN, M.R.C.V.S.

It seems hardly necessary to say that pleuro-pneumonia, or lung plague in cattle, is incurable and highly contagious; but the result of careful research, and the experience of years, shows that the contagion can only be communicated by contact with the living diseased animal.

The disease is so insidious that it has only been after the most careful and thorough tests that this decision could be arrived at.

Animals have been known to carry the disease in their systems for long periods, ranging from three to fourteen months, without evincing any outward symptoms that could be detected by the veterinarian, and were only discovered after they had infected other animals with which they came in contact, and with them were slaughtered.

Again, the disease may verge into the chronic stage, and the diseased portion of the lung become encysted, or enclosed in a cyst or sac; it is said so long as this remains intact they are harmless, but let it once break down and the diseased portion become liquified and pass into the bronchial tubes, the contagion is thrown off with the breath and impregnates all the animals that are in immediate contact.

That this theory is not generally accepted by those interested in the eradication of the disease in this country, I am well aware, and I have taken great pains to fortify myself with the results of the experience of some of the most practical workers and eminent scientists that have given attention to the symptoms and rages of pleuro-pneumonia.

In Pennsylvania, the State that I have the honor to represent, Dr. Francis Bridge has possibly had as large an experience in this disease as any person in the United States. In frequent conversations, and in several letters hereto appended, he states most unqualifiedly that the disease can only be communicated by contact with the living diseased animal.

In his experience as an inspector for over seven years he has seen numerous instances in which healthy animals have been placed on farms and in buildings from which diseased animals had recently been removed to other quarters, or for slaughter, without any disinfection or purifying process being used, but buildings and litter allowed to remain just as they were when the diseased animals were taken out.

He cites one instance where, by accident, healthy animals during the night broke into an enclosure where the carcass of an animal affected with pleuro-pneumonia that had been killed, was allowed to remain unburied, and came into direct contact with

the diseased lung, which was thoroughly impregnated and weighed thirty pounds.

He mentions again several cases where, as an experiment, the food left by diseased animals was fed to healthy cattle, and in none of the instances above recited was a single animal affected, nor was the contagion conveyed to one of them.

But perhaps the most conclusive test, and the one on the largest scale, was made in the city of Chicago, at the sheds of the Shufeldt Distillery. The sheds had been occupied by cattle affected with pleuro-pneumonia, 445 out of 897 being found diseased; and the last ones were slaughtered on December 10, 1886. Messrs. Shufeldt & Co. were anxious to refill their sheds, and made application to the State Live Stock Commissioner for permission to do so. Having been called upon, I gave my opinion that this would be entirely safe, *provided* the animals brought in were perfectly healthy. Upon Mr. Shufeldt guaranteeing this, the commissioners gave the necessary permit, and on December 18, 1886, 894 fresh, healthy cattle were brought in and kept under strict quarantine until the time of slaughter, which was during June and July, 1887. Each animal was carefully inspected, and a post mortem examination made by Dr. John Casewell, State Veterinarian, a man thoroughly familiar with the disease, its symptoms and characteristics. He reports that these animals were all found free from any taint of pleuro-pneumonia.

Although these sheds stood empty for a time and were partially disinfected, the flooring was not removed and the mangers and fixtures remained, the only essential precaution insisted on being that none but absolutely healthy cattle should be introduced.

The experience in this case is not a singular one, and although I was looked upon as bordering on rashness in giving this opinion, yet from my own experience of many years, and the testimony of those in whom I had the most unbounded confidence, I felt assured that I was right, and the result has proved the correctness of my opinion.

Professor Williams, Principal of the Veterinary College, Edinburgh, writes under date of September 19th: "My experience leads me to conclude that it is safe to place cattle in sheds which

have been previously occupied by those having pleuro-pneumonia, and that the *contagion* is only virulent when conveyed by the living animal."

Clement Stephenson, F.R.C.V.S., Inspector for Northumberland, in a letter of September 10th, says: "Although I never had any doubt as to the so-called experiment at Chicago, it is still gratifying to find that it has worked out as we predicted."

Professor James McCall, Principal of the Veterinary College, Glasgow, Scotland, under date of September 26th, says: "I have much pleasure in acknowledging receipt of yours of 2d inst., intimating the result of your experiment with the cattle in the sheds of the Shufeldt Distillery, and I should have been disappointed had it terminated otherwise. I have for the past twenty years maintained that the contagion of pleuro-pneumonia is only spread by the living affected animals, and that cohabitation is necessary."

Professor Thos. Walley, Principal of the Royal Veterinary College, Edinburg, in his letter of September 26th, is more conservative, and while he does not deny that the disease can only be communicated from the living animal, neither does he affirm it, but says: "One swallow does not make a summer, you know, and perhaps if your experiment is repeated the result may be very different."

Professor J. Wortley Axe, Professor of Pathology in the Royal Veterinary College, London, says in his letter of October 10th: "It has always appeared to me that the virus of the disease is peculiarly unstable, and to be effective requires to pass directly from the respiratory organs of the sick to the healthy, and hence it is that cohabitation, or contact of the former with the latter, is rendered necessary to the propagation of the disease."

So while assertions have been made that the disease has been carried in the clothing of attendants, or remained in sheds and buildings from which diseased animals have been removed, yet in no instance has any authentic proof of this been produced; while on the contrary we have the evidence of college principals and professors and men which have given years of study to the disease, and with the single exception of Professor Walley, who is

non-committal, they all state in the most emphatic terms that by direct contact alone with the living animal can the disease be communicated.

Professor Brown, who, as adviser to the British Government, receives reports from hundreds of inspectors, and is kept fully advised of every outbreak and the circumstances attending it, and has made numerous experiments himself to determine this question, gives his evidence in the same direction in no uncertain terms. Dr. Bridge, who has been a practical worker in the disease in this country for years, is equally decided in the stand which he takes, and last, but not least, is the test at the Shufeldt Distillery, which was the largest ever made, and made, too, in the face of the strongest protests from those who at the time held different opinions, and as to the successful result of which you have the testimony of another practical worker, Dr. Casewell.

In this one respect pleure-pneumonia differs from all other contagious diseases in cattle, for in all the others contagion may be carried by *immediate contact*, through food, clothing, buildings, etc., while this alone requires contact with the living diseased animal.

WHY THE DISEASE HAS NOT BEEN ERADICATED.

Pleure-pneumonia has existed in portions of the United States for over forty years, and spasmodic efforts have been made in various localities to get rid of it, but there has all along been a tendency to make light of it, and those residing in the sections of the country not affected, have disbelieved in its existence.

Whenever an attempt was made to secure adequate legislation to stamp it out, the cry was raised that it was simply in the interest of some department of the Government that desired the employment of a number of men, and the expenditure of a large appropriation.

False statements were made to and repeated by members of Congress, and sectional prejudices were invoked to defeat proper legislative action.

Ignorant persons have attempted the treatment of the disease, and farmers and cattle raisers have concealed its existence; while

those charged with the enforcement of the State laws have been so lenient or negligent that diseased animals, and those exposed to the disease, have been permitted to be removed from point to point, in spite of so-called quarantines that amounted to nothing.

So long as the disease remained in the Eastern States, those in the West ridiculed it, and even after it had reached the Western States, doubts as to its contagious character were insisted upon, until its ravages became so wide-spread that the danger could no longer be denied.

Local jealousies and want of co-operation, inadequate appropriations to pay for animals killed, and a general want of knowledge as to the nature of the disease, have been the causes that have prevented our getting rid of it; and if not speedily corrected, will be the cause of its still further spreading until it reaches the ranges of the far West and Southwest, where all means of eradicating it will be hopeless.

Such being the case, by what method shall we rid the country of the disease?

Firstly. By prohibiting the importation of live animals from all countries where the disease exists.

Secondly. By the prompt slaughter of all animals affected with it, and those that have in any manner come in contact with them.

To secure this we must have the whole power of the National Government exercised, and the earnest co-operation of State and Territorial authorities.

It will involve the slaughter of many animals that may show no outward taint of disease, yet which from their exposure to infection may be the means of transmitting it to others.

When the disease is discovered on any premises, allow no animal to be removed alive; but, after examination and appraisement by the proper authorities, have all slaughtered, the healthy animals for beef, and the diseased ones for burial.

Place a fair valuation upon every herd infected, and after deducting the price received for the carcasses of the healthy ones, pay the owner the balance of the appraisement promptly, in cash.

Impose heavy penalties upon all owners of cattle who fail to

notify the proper authorities of the existence of disease, and where it is verified by an examination of skilled veterinarians, allow no discretionary power to executive officers, but compel prompt slaughter.

If these regulations are adhered to strictly, pleure-pneumonia will soon be exterminated, and if care is exercised, it never need be re-introduced; for it is not indigenous to American soil, but was in the first instance imported from abroad, and has slowly but surely spread from point to point, until it has assumed its present vast proportions.

PROF. B. GRASSI ON THE *TÆNIA NANA*.

BY COOPER CURTICE, D.V.S.

During the past year Prof. B. Grassi, of Catania, Italy, has been studying the life-history of *Tænia nana* and the result of his observations have been published in the *Centralblatt für Bacteriologie und Parasitenkunde*: Bond I, No. 4 and 9; Bd. II, No. 4 and 94; No. 10 and 282; No. 11 and 305. His study of this species leads to results so different from the hitherto established theory of the life history of the armed tænia that we are led to believe that there may be for some of the species, if not all, two methods of development.

Prof. Grassi holds that *Tænia nana*, which is quite frequently found in Egyptians and Italians, is identical with, or a variety of *Tænia murina*, which infects rats (*Mus decumanus*). The experimental portion of Grassi's studies were performed with *Tænia murina*: should his identification of the two species as the same, or varieties of the same, obtain, as he seems to firmly establish, then his studies will have a doubly important value.

After vainly searching for the cysticercal stage of *Tænia murina* through all of the more common species of snails, insects, myriopods, etc., which lived in or around the slaughter houses where all the rats examined were infected, he at length turned his attention to feeding the ripe proglottides to uninjected white rats. He succeeded in infecting them with large numbers of

these *tænia* while some rats which were selected from the others and which were not fed remained uninfected. The large numbers of *tænia* found (ordinarily there are but two or three) the young stages found corresponding in size with the time elapsed from the date of feeding, and the accuracy with which Prof. Grassi and his assistant S. Calandouuccio have carried out and detailed their experiments, preclude the possibility of error. He thus has proven that the development is direct and does not require an intermediary host, as was formerly supposed.

One or two of Stein's *cysticercus* which have been described from meal-worms, and which have since been held to be the intermediary stage, were found and fed to a man but with no result. In dissecting a large number of these worms the author was forced to conclude that there was not sufficient *cysticerci* to account for the abundance of *tænia* in the rats. In the light of Stein's investigations, however, I think we should hesitate in accepting the direct development of the eggs of *T. murina* as their only method of development, for it should be borne in mind that the *cysticercal* stage of *tænia* appears after all to be but a stage of arrested development. That these *tænia* could have these two methods of development seems, in the light of the present knowledge, to be the most plausible explanation of the phenomena presented.

Prof. Grassi identifies *T. murina* with *T. nana* on account of their strict anatomical resemblance, and makes a varietal difference between them on account of the difference in size, *T. murina* varying between 10-12-20 mm. and *T. nana* between 33-35-40 mm. The hooks of each are alike in size, form and numbers, (24-28). He describes an inconstant slight difference in the eggs. The importance of this identification, together with the life-history of *T. murina* and *T. nana*, has its bearing on the treatment of human patients infected with this parasite.

Helminthologists will not be slow to substantiate or disprove the accuracy of these observations, and to experiment with other species. Now that another line of experimentation has been entered upon we may expect that our knowledge of this interesting class of parasites will soon increase.

HYPODERMIC MEDICATION AND ITS APPLICABILITY IN EQUINE PRACTICE.

BY J. ROBERTS NAYLER, D.V.S., Ph.G., Jersey City, N. J.

Having long felt the necessity in equine therapeutics for a better method of administering medicaments to our patients than the common mode recognized by practitioners of all grades, it occurred to me recently to try the hypodermic method, for two important reasons, viz: 1st. On account of its easy administration; 2d. Because quick results can be obtained, and that with the least minimum of annoyance to the practitioner. Take, for instance, the removal of a serous cyst, which sometimes, with a fractious animal, gives the operator a great deal of trouble, whichever way he chooses to undertake its removal, whether by surgical operation, seton, or the insertion of hydrargyrum bichloridum and acid arsenicum, or even the ligature to which many resort in order to effect its removal.

Instead of any of the foregoing methods, it has been my plan of late to insert, hypodermically, acid. carbolicum; and since resorting to this procedure, I have met with much less annoyance (and in each instance with complete success) than with any of the means above enumerated. I usually inject the acid carbolicum in a solution containing 10 per cent.; in some cases I have even used the pure acid, and in no single instance have I met with any but good results.

In rheumatoid affections of the joints, when it seems extremely painful for the animal to move, brilliant results often ensue from a 2 to 5 per cent. solution of acid carbolicum, hypodermically inserted as near the seat of the pain as it is possible to locate the same. Partial anæsthesia ensues in a few minutes, and our patient seems relieved of the pain.

In simple colic, the hypodermic injection of morphia acetatis has in my hands been the means of giving prompt relief, especially when combined with gelsemin.

I have also found the administration of pilocarpin, hypodermically, in pneumonia (when no indication of any weakness of

the heart's action can be ascertained), to give better results than from medicaments inserted into the stomach.

Even in tetanus the hypodermic injection of remedies such as acid carbolicum, pilocarpin, nicotine, morphine and strychnia, promises better results, with the least minimum of trouble, than all the heroic doses of potassium bromidium, chloral hydrate, or any of the nerve sedatives can be expected to accomplish when given by the mouth, even when it is possible to do so.

The list of active principles suitable for hypodermic medication are very numerous, and at some future time I may compile a list of the same, with their doses, mode of preparing solutions, etc. But before resorting to this method, I would like to offer a suggestion to the veterinarian: In the first place, see that you obtain a properly graduated *syringe* (and that it is absolutely correct in its capacity). I have found many syringes to vary from 5 to 15 per cent.; the one I use has a capacity of 120 minims, equal to two fluid drachms. In the next place, be sure you obtain the purest alkaloids, and, if possible, use only freshly prepared solutions; also, in making the solutions, use no more acid to dissolve the alkaloid than is necessary; it is the better plan to obtain a soluble salt, such as the sulphate of styrichnine, instead of the alkaloid styrichnia, with which to make the solution, and after each insertion be careful to cleanse your syringe and needles, and make them antiseptic by immersion in a solution of carbolic acid, as cleanliness in this particular is absolutely necessary to secure complete success. Judicious care also should be exercised in choosing the proper location for inserting the needle, so that no important artery or vein is wounded. Of course it is understood that the cellular tissue should invariably be the part of the anatomy in which to place the medicine. I would also like to impress upon the operator the necessity of seeing that no air is drawn into the syringe between the plunger of the syringe and the medicine which it is intended to administer; because if these little minutiae be overlooked, abscesses are very liable to form at the point of juncture, and cause much trouble to the careless veterinarian; but should ordinary precautions only be taken, I feel convinced that this method of medication will

give quite as much satisfaction to the veterinary surgeon as it has given to the physician in his practice. It also lifts the educated veterinarian to a higher plane in the eyes of his patrons, and gives to veterinary science the place it so much needs.

EXTRACTS FROM FOREIGN JOURNALS.

DIARRHœA IN SUCKING CALVES AND COLTS.

By O. SCHWARZMAIER, Director of Breeding Station.

(*From Centralblatt für Veterinär Wissenschaften*, No. 49, 1886.)

In his hand-book on "Veterinary Obstetrics," Franek describes this malady as one of the most important and fatal in newly-born animals, and surely everybody will agree with him.

Expedients of every kind and description are recommended and applied by practitioners to overcome the fatal results, but nowhere do we find a reliable mode of treatment recorded. It is clear that the chief aim of both breeder and veterinarian must be directed particularly toward extirpating the agitators of the disease before the birth of the calves or colts, which, according to the predominant views of both the older and newer schools, are to be sought for in a stable miasma as yet undetermined.

To this end, after thoroughly cleansing the stalls of the mother animals, an application of a sublimate solution, about 1-1000, is most trustworthy. For instance, here in the stud I have the box stall of the mare (which is plastered and provided with drainage) disinfected with the above mentioned remedy about two or three days before the act of birth, and thus far with the result that diarrhoea appears less frequently, and, with the exception of a single case (mentioned below), in a much milder degree than formerly. Two or three days after foaling, the stalls are again disinfected in the same manner, and the bedding which is soiled by the liquor amnii, blood, etc., is carefully removed.

It is not to be expected that in stables injudiciously constructed, where there is nothing but bowlders, wooden floors, or where the animal is even obliged to lie on the bare ground, disinfection

can have the desired effect; in fact, farmers in general will not take these measures, but where it can be done it should never be omitted.

Notwithstanding the disadvantages existing in our practice, the main problem, as far as circumstances are favorable, consists in removing the existing diarrhoea. If the desired effect be not attained, the fault is not so much in the remedy used as in the doses given. Thus we will find that in the human being, next to tannin, opium as opium purum, or tinct. opii. simpl., which is given almost exclusively with the best results, is also used in veterinary medicine. But how? In doses which, in my opinion, are much too small.

For instance, if pulv. rad. rhei 4, 0, magnes. carbonic, 1, 0, opii pur. 0, 3, with 100 gm. chamomile tea or 50 gm. brandy, is given at once, and then not again until after a lapse of twelve hours, or if 250 gm. althea decoct., tinct. opii simpl. 7, 5, is prescribed, of which mixture 2-4 tablespoonfuls every two hours is given, no trustworthy effect can be expected. We need not be so timid about giving the promptly acting opium; our sucking calves and colts can bear heavier doses. For a long time I have given not less than 4 gm. tinct. opii simpl. at a dose, with a little spts. rectificaliss., or brandy, which was repeated every three to four hours until the diarrhoea was allayed.

When visiting such cases professionally, it can seldom be ascertained whether the prescribed medicine has been given properly, or how often it had to be given before a result was noticed. The owner of the animal merely replies: "The medicine acted like a charm." Here, in the stud, however, I can minutely observe how matters stand in the individual case, and have found that we can give a young colt, be it a day old or older, a great deal of opium, without fear.

Regardless of my former experiences, that opium given in larger doses is a very reliable remedy against diarrhoea in the newly born, I take the liberty of citing the following cases as proof of my assertions:

(1.) A five-day-old, quite strong colt, was suddenly attacked with diarrhoea. Tinct. opii simpl., 5 gm., with a little spts. rec-

tificaliss., was given immediately and repeated every three hours, until, after eighteen hours, the colt received (after deducting something which may have been lost in administering) ca. 25 gm. tinct. opium, with perhaps 50 gm. spirits, and the diarrhoea subsided.

(2.) A four-day-old healthy, though weak colt, was also attacked with diarrhoea, which called forth colic pains. A dose of 5 gm. tinct. opii simpl., with spirits, was given every three hours. The diarrhoea, however, would not abate; on the contrary, after two days of diarrhoea, the appetite was lost; the colt would not suck any more; an involuntary watery, grayish, offensive alimentary discharge escaped continually, and upon no change taking place on the third day after giving rheum with opium purum aa. 5 gm., with decoct. althea, and hope of saving the colt was nearly abandoned, opium purum, 30 gm., with althea powder, was made into six small pills, one to be given every three hours, and not until the last dose of opium was taken, at the end of the fourth day, did improvement set in, and the colt to the present day is very lively.

(3.) Another colt, four weeks old, did not suffer with diarrhoea, but with colic, to such a degree that displacement of the intestines was suspected. The colt received, within three hours, tinct. opii simpl. 10, 0, and morph-hydrochloric 0, 3, internally. The pains subsided, and the colt recovered.

I have noticed one thing, that after giving such large doses of opium the colts will continually, for a longer or shorter period, walk slowly around in a circle in the box stall. Whether this is due to the opium, or to the dull pains in the intestines—as in dogs suffering with tape-worm, who move rapidly in a circle—I am not prepared to determine; but no trace of actual poisoning could be detected. According to my experience, such diarrhoeas usually abate after 12 to 15 gm. tinct. opium at most, thus after three doses of 4 to 5 gm. each. Should there still be no change, six or ten hours must be intermittent, and then the doses repeated.

¹ It is necessary at the outset of the disease to give the animals plenty of dry bedding, and to cover them well with straw or

blankets. But the main thing remains, that help be brought just so soon as it is noticed that the diarrhoea has set in.—*Adam's Wochenschr.*

REPORTS OF CASES.

RUPTURE OF THE LIVER.

By W. H. PENDRY, D.V.S.

I was lately called to see a fine bay carriage horse, seven years old, said to be lame; to use the owner's words, "Not exactly lame, but shows a peculiar arching of the back, drawing himself all together, as it were, when starting off, particularly after having stood some little time." I made a careful examination, could find no cause for such a state of things as described by the owner; in fact, could not make the horse lame, with the exception of a very slight stringhalt in her hind leg. The owner requested me to use the horse for a day in the hope that he would exhibit some of the symptoms described by him. I did so, but he failed to show anything. I wrote the owner the result, but stating that, from the history, I was of the opinion that there was some organic trouble, but just what I was unable to say, and he having asked me to advise him whether to keep or sell the horse, I advised him to sell at once. About a week after I was again called to the same stable to treat a case of colic. On arriving there I found this same horse to be the cause of my hurried call. I found him laying in his stall partly on his back, almost quiet, with his feet up against the side of the stall. After considerable trouble he was got upon his feet, and on examination I found the pulse hardly perceptible, countenance anxious, perspiration pretty general, but more particularly about the abdominal walls, a peculiar trembling of the muscles of the off shoulder (supporting the theory that "in liver complaint the horse is often lame in the right foreleg, as if the pain extended to the shoulder"), temperature, 103 F. I however diagnosed the case as one of colic, with some complication, and gave a very doubtful prognosis. I administered sedatives, and had the horse turned into a loose

box; he at once lay down, using great care in doing so, then looked anxiously at his side as in colic and rolled over on his back, which position seemed to give him ease. I revisited the case in about four hours and gave opiates, but death ended his sufferings in about nine hours after I was first called; going off as if he had fallen asleep looking at his side. I ordered the removal to the offal dock as soon as possible, so as to have a post-mortem soon, as gas began to accumulate very rapidly.

As a prelude to the post-mortem, I would say that as soon as the Skinner began to remove the skin he remarked, "Doctor, you have a rupture here," and further, on removing the abdominal walls, inserted his hand and pulled it out full of a dark substance (not simply coagulated blood). The intestines were carefully removed, but no rupture found; there were some anti-mortem congestion, but most of the congestive lesions I concluded post-mortem. On making a longitudinal section of the intestines, they were found to contain very dry faecis, the inner surface of the intestines were highly fluted with gas between the outer and inner surface, which could easily be reduced by pressure. The spleen and kidneys seemed to be all right, but on examination of the liver, it was found to be ruptured, and the whole of its substance found to be of the consistency of very soft mud, being rather grayish in color; it could be easily taken up in the hand and squeezed through the fingers, resembling what was first discovered by the Skinner on opening the abdominal walls. I made known the result of the post-mortem, and gave it as my opinion that the horse had suffered with a disorganized liver, and that his periodical lameness was due to that fact.

FISTULA OF STENON'S DUCT.

By J. S. BUTLER, V.S.

On the 18th of November last, as I was passing the farm of Jacob Yenney, Esq., near this city, my advice was asked concerning a two-year-old colt, which he said had distemper and a running sore on the jaw. I went in and found the colt to be suffering from strangles and a fistula of Stenon's duct.

Upon inquiry I found the fistula was due to an empiric lancet an abcess at the angle of the jaw where the duct winds around it and opening the duct. The colt had been in this condition for several days, and in feeding dry food enormous quantities of saliva were discharged. This, together with strangles, was debilitating the animal greatly.

I prescribed flexible collodion to be frequently applied, and ordered a sloppy diet. Two or three days afterward the owner brought the colt to my infirmary when, upon examination, I found the fistula had closed, but the face was badly swollen from the old opening to within about three inches of the opening into the mouth, thus showing there was either an obstruction or obliteration of the duct anterior to the swelling. I made an opening into the duct at the termination of the swelling and tried to pass a probe into the mouth, but failed on account of the duct being obliterated. I decided to try and form an artificial duct, so I threw the animal and, with the help of an assistant, succeeded in passing a blunt pointed needle with a good-sized waxed thread through into the mouth, having previously put in my mouth speculum and guiding the needle into the mouth with my left hand. I fastened the thread securely to a flat button and pulled it close against the cheek on the inside, then fastened it externally to a small stick placed against the face. Gave nothing but gruel to eat. Left the seton in five days, until it began to suppurate, then removed it and closed up the opening with flexible collodion, which I had no trouble in doing. Then gave some dry food, when, to my delight, I found I had succeeded in establishing an artificial duct.

SOCIETY MEETINGS.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

At a regular monthly meeting of the Keystone Veterinary Medical Association, held at the Veterinary Department of the University of Pennsylvania, January 7th, 1888, the meeting was called to order by its President, Dr. Zuill.

At roll-call eight members answered to their names. The minutes of the two preceding meetings were read and adopted, with a slight alteration in those of the last meeting.

Dr. Hoskins reported, on behalf of the Committee on Credentials, that he recommended S. J. J. Hargrave, V.M.D., as a reputable graduate of the University, and Dr. Otto Von Lang, as a graduate of the Columbia College, of New York, but the latter having withdrawn his application, it was unnecessary to proceed with the election.

Dr. Zuill reported on behalf of Committee on Revision of Constitution that, owing to an oversight, they were not prepared to report.

Dr. Francis Bridge and Dr. C. K. Dyer were each appointed to read a paper, but were both absent.

Dr. Charles M. Cullen was then called on but was unprepared, and was then requested to pay his fine to the Treasurer.

Dr. Charles T. Goentner reported a very interesting case of calculi in the urethra of a grey gelding which he had under his care with injuries received from barbed wire fencing. The animal had shown colicky pains for nearly forty-eight hours before he had been called, and on examination the Doctor found an enlargement in the scrotal region, which he was able to work down to within about seven inches from the end of the penis, was enabled to reduce it enough to remove by breaking off small portions by means of a pair of long dressing forceps, but the operation was tedious and attended with copious hemorrhage. And on subsequent removals of urine by means of catheter, the animal fainted but was revived by means of stimulants and finally made a good recovery.

Dr. Formad then mentioned a similar case in a dog; the operation of lithotomy being performed, but animal only survived a short time, dying of uræmia. The post-mortem show abscesses in kidneys, purulent cystitis and urethritis.

Dr. Zuill objected to the treatment employed by Dr. Goentner, and thought urethrotomy would have been preferable and less likely to cause stricture. He then produced specimens of calculi in dogs, and mentioned one in a dog as young as eighteen months.

Dr. Goentner thought his results proved that his treatment was correct, and that if urethrotomy had been performed he might have had a fistula. Dr. Glass thought that, owing to the universal uncleanly condition of the parts, a wound would be attended with bad results, and that retaining a catheter in the bladder was dangerous by causing relaxation of the sphincter.

Dr. Hoskins coincided with Dr. Goentner, and said that stricture seldom or never followed the natural passage of stone in the human family, and spoke of the danger of opening all such canals and their slow and tedious healing.

Dr. Goentner thought there was often great danger of too hasty operation, and that if the knife were only used as a last resource we would have less need of it.

Dr. Hoskins mentioned a case of retention of urine in a bitch, fourteen inches in height, that did not urinate for ten days and whose belly touched the ground, and on removal the urine measured three pints.

Dr. Zuill then produced a very interesting specimen of papilloma in the oral cavity of a dog, the whole surface being completely studded.

Dr. Formad said it was unknown in man, although it *did* occur on the *vocal* cords. He also volunteered to make a *systematic* classification of tumors as found in veterinary practice, if our veterinarians would kindly assist him with the specimens occurring in their practice.

Dr. Goentner asked if there was any constitutional treatment for warts.

Dr. Formad said laxatives were considered good, but that as a local treatment chromic acid was the best and not at all painful.

Dr. Zuill mentioned the negro superstition of rubbing the affected part with a dead fowl and then *secretly* burying the carcass.

Dr. Goentner mentioned the use of carbolic acid as positive.

Dr. Hickman reported a case of peculiar mange in a herd of cattle, occurring in his practice. Adjourned.

CHAS. WILLIAMS, *Secretary.*

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

The fifth annual meeting of the Ohio State Veterinary Medical Association met in the City Hall, Akron, Ohio, January 10, 1888. The President, Dr. J. C. Myers, Jr., of Cincinnati, called the meeting to order by a few very appropriate remarks, and then proceeded with the regular business of the meeting.

At roll-call twenty-three (23) members responded. Minutes of previous meeting read and approved. Election of officers resulted as follows, viz.:

President, Dr. J. S. Butler, Piqua; 1st Vice-President, Dr. N. R. Howe, Dayton; 2d Vice-President, Dr. Gribble, Washington C. H.; 3d Vice-President, Dr. Miller, Washington C. H.; Recording Secretary, Dr. N. Shaw, Dayton; Corresponding Secretary, Dr. D. P. Yonkerman, Cleveland; Board of Censors, Drs. Derr, J. D. Fair, J. C. Myer, Jr., N. R. Howe.

The meeting then adjourned to meet at 1.30.

At the appointed time the new President, Dr. Butler, opened the meeting with a few well-chosen remarks, and thanked the members for electing him to such a high and honorable position.

Dr. J. C. Myer, Jr., gave notice of motion to change the Constitution and By-Laws. A committee, consisting of Drs. Newton, Whitehead, Howe, Myer, Jr., and J. D. Fair, were appointed to draft such new clauses and changes as they think best and report the same at next meeting for consideration of the members.

New members proposed, balloted for and accepted: O. J. Carter, V.S., T. N. McDermott, V.S., C. Crisman, V.S.

A resignation from T. S. Butler, V.S., was accepted, owing to his being permanently located in another State. Several members expressed their regret for losing such an able and active member. It was moved, seconded and carried unanimously, that the best wishes of this Association be tendered Dr. Butler for future health and prosperity.

Dr. J. D. Fair, of Berlin, read a very able paper on glanders and farcy, which led to an able and lengthy discussion. Three or four members claimed the *virus to be volatile*.

Dr. Torrance, of Cleveland, read an able paper on the use of electricity in veterinary practice.

Moved by Dr. Newton and seconded by Dr. Shaw, that the above papers be sent to the AMERICAN VETERINARY REVIEW for publication.

Dr. Whitehead read a paper on tetanus and a lengthy discussion followed, in which all members took part. Several new remedies were brought forward, some members having had a great number of cases, which they treated with good success. * * * *

Dr. Miller very elegantly described an operation which he lately performed, which consisted in the removal of a large pharyngeal polypi.

Dr. Grebble read an able paper on *Actinomikosis*, which was ably discussed.

Dr. Burnett read a very interesting paper on *volvulus*.

On motion, Dr. J. D. Fair, of Berlin, was appointed to attend the United States Veterinary Medical Association as a visitor, for the purpose of inviting that Association to meet the Ohio State Association at our annual meeting.

The meeting then adjourned to meet in Cincinnati in July; day to be named by the President and Dr. Myer.

N. SHAW, *Secretary.*

KANSAS VETERINARY MEDICAL ASSOCIATION.

The Kansas State Veterinary Medical Association held its annual session in Topeka, Kan., Dec. 15, 1887. The officers elected for the coming year were:

President, Dr. Holcombe; Vice-President, Dr. Epperson; Secretary, Dr. Allen; Treasurer, Dr. Moore; Board of Censors, Drs. Phillips, Epperson, Gragg, Moore and Allen.

Although not one-half of the members were present, the occasion was a very enjoyable one, due partly, no doubt, to the fact that the Short-Horn Breeders of Kansas were holding a meeting at the same time, and by a little changing of hours the members of each Association were enabled to attend the other. We most certainly felt highly honored by having so many prominent breeders and farmers meet with us and discuss subjects in which they are deeply interested.

A paper on "The Physiological Laws of Inheritance" was read by Dr. Epperson, and the discussion of the same readily centred upon tuberculosis, which was discussed at some length by the members and others. Prof. Shelton, of the State Agricultural College, said he believed this disease of all others the most dangerous one with which the American farmer has to contend to-day, and, considering its nature and wide dissemination, it will be the most difficult to extirpate; that when the great loss of human life directly traceable to this cause is taken into consideration, it becomes a matter of the gravest importance. Attention was called to the fact that unscientific persons know but little of this disease, hence the urgent necessity for more general information regarding it.

Dr. Bateman read a paper on the subject of "Castration," in which the various methods were considered. In his own practice the essayist preferred the use of clamps, in ridgling castration, to that of the ecraseur. The opposite view was entertained by Drs. Moore, Epperson, Allen and others.

The farmers and stock-raisers present improved the opportunity to bring up and discuss a variety of subjects, and to ask questions regarding cases in which they were individually interested. After some other routine business of minor importance, the society adjourned to meet in Topeka in March.

ED. R. ALLEN, *Secretary.*

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Names

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Clapp,
Cooper,
Collins,
Coates,
Carpent
Cunning
Dean, I
Ewing,
Evans,
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LIST OF GRADUATES

AT DECEMBER EXAMINATION OF ONTARIO VETERINARY COLLEGE, TORONTO, ONT.

<i>Names</i>	<i>Residences.</i>
Baxter, G...	Michigan, U. S.
Broad, W. F.	Sonya.
Clapp, W. H.	Dresden.
Cooper, H.	Davisville.
Collins, C. O.	Obolds, Pa., U. S.
Coates, R. C.	Bothwell.
Carpenter, W. H.	Holly, N. Y., U. S.
Cunningham, E. E.	La Porte, Ind., U. S.
Dean, H.	Tavistock.
Ewing, W. A.	Newmarket.
Evans, W. M.	Simcoe.
Huck, W. H.	Milmay.
Kannon, M.	Montreal, Quebec.
Kumpt, W. A.	Waterloo.
Kintner, S. P.	Wooster, Ohio, U. S.
McMurray, O. M.	North Baltimore, Ohio, U. S.
McLaren, C. L.	Highgate.
Oyler, J. N.	Harrisburg, Pa., U. S.
Pike, F.	Toronto.
Shillinglaw, W.	Staffa.
Story, R. W.	Princeton, Ill., U. S.
Taylor, B.	Hillsborough, Dak., U. S.
Thomson, W.	Orillia.
Walker, R. J.	Cloher, Ireland.

REVIEWS AND NOTICES.

NOUVEAU DICTIONNAIRE PRATIQUE DE MEDECINE DE CHIRURGIE ET D'HYGIENE VETERINAIRES. Begun by H. BOULEY and continued by A. SANSON, L. TRASBOT and E. NOCARD.—Vol. 14 (Asselin, Place l'Ecole de Medecine, Paris.)

The completion of this excellent work, which since the death of H. Bouldy, has been continued under the able direction of the new authors, his former collaborateurs, is now, we trust, an assured fact, and that in the near future. The volume just published, forms, like its predecessors, a book of over five hundred pages, and contains numerous articles, by writers well known, not

only to French but also to foreign authors. Besides the names of the three principle authors of the dictionary, we find those of Mr. Kauffman, on narcotics and narcotism; of Mr. Cadiot, on navicular disease and on the pathology of the oesophagus; of Mr. Lulainche on neoplasms, on the pathology of nerves, on neurofibromas; on obliteration and occlusion; oedema, diseases of the conjunctiva; of the lacrymal apparatus; and on cataract; of Mr. Barrier, on the general anatomy and physiology of nerves and on that of the eye; of Mr. Comeny, on plantar neurotomy; of St. Cyr, on obstetrics, and of Mr. Ruilliet, on the various cestri. The book is completed by Prof. Sanson, with several articles on zoötechny; by Prof. Trasbot, on necrobiosis, neurosis and various affections of the eye; by Prof. Nocard, on a peculiar skin disease of sheep, and on the pathology of the nasal cavities. The fourteenth volume of the *Dictionnaire* will, we are confident, be specially welcomed by French readers, for such of its contents as serve to supply certain deficiencies hitherto existing in veterinary literature.

LE PIED DU CHEVAL ET SA FERRUVE. By A. WATRIN.

A resumé of observations, experiments and discoveries made by the author during a practice of several years, and which he now offers to the public for their consideration and judgment.

OESTERREICHISCHE MONATSSCHRIFT FUR THIERHEILKUNDE UND REVUE FUR THIERHEILKUNDE UND THIERZUCHT. By ALOIS KOCK. Vol. 13; No. 1.

For the past twelve years our worthy friend, the editor of the *Revue*, published his work in separate sheets. In the thirteenth volume the style is changed, and it now comes to us in the more convenient pamphlet form, comprising forty-eight pages of interesting original articles, and reviews of continental journals. We congratulate Doctor Alois Kock on his new departure, and hope that the success of the future will quite equal that of the past.

BOOKS AND PAMPHLETS RECEIVED.

***LES INVISIBLES.** By FABRE DOMERGUE.

†**LA QUESTION D'IDENDITE DE NATURE DE LA MORVE ET DU FARCI CHEZ LE CHEVAL ET CHEZ L'HOMME.** By G. CHENIER.

*The *invisibles*.

†The question of the identity of glanders and farcy in the horse and in man.

THE QUARTERLY JOURNAL OF VETERINARY SCIENCE IN INDIA.
No. 21; Vol. 6. By J. H. STEEL and F. SMITH.

Comprising much useful matter and making a valuable addition to any library.

REPORT OF TERRITORIAL VETERINARIAN OF WYOMING.

IL VIRUS DELL' AVENITE EQUINA. By DR. LEOPOLDO BARUCHELLO.

L'INDIRIZZO E IL METODO, NELL' INSEGNAMENTO DELLA ANATOMIA VETERINARIA. By DR. A. LANZILLOTTI BUONSANTI.

OBITUARY.

PROF. W. ROBERTSON, OF LONDON.

The death of Prof. W. Robertson, Principal of the Royal Veterinary College, took place on the 15th of December last, in the fifty-seventh year of his age. Prof. Robertson received his professional education at the Edinburgh Veterinary College, where he graduated in May, 1860. He filled several high positions connected with veterinary education, and in 1881 was appointed Principal at the Royal Veterinary College, in place of Prof. Simonds, retired. Prof. Robertson wrote a number of articles in the *Veterinarian* and in the *Journal of the Royal Agricultural Society*. His last work, on Equine Medicine, published in 1883, is a valuable memento added to veterinary literature. At the time of his death, which took place suddenly from heart disease, he was engaged in writing and rewording some reports; correcting proofs for a new work which was soon to be published.

CORRESPONDENCE.

ANSWER TO ETHICS.

TORONTO, Jan. 9, 1888.

Editor American Veterinary Review:

SIR.—In reply to Ethics' inquiry in the December number of the Review, I respectfully beg to state that the Examining Board of the Ontario Veterinary College *does not* grant any Fellowship degree.

The Veterinary Medical Society in connection with the College grants *a certificate* of Honorary Fellowship to each student who has conformed to the rules of the society on completing his collegiate studies and obtaining the Diploma of the Council.

I am Sir, Yours truly,

ANDREW SMITH.

HONORARY TITLES OF ONTARIO VETERINARY COLLEGE.

Editor American Veterinary Review :

DEAR SIR.—Will you allow me to make a few remarks on the subject brought forward in your last issue with regard to the honorary degree said to be conferred by the Ontario Veterinary College. Many of your readers who are graduates of that institution will doubtless know how that title originated, and will be as ready as the authorities of the College themselves doubtless are, to condemn the action of some of their fellow-graduates which gave rise to such a rumor.

I do not, of course, speak with authority, but with a positive knowledge of the facts when I say, that any such title is entirely self-assumed, and assumed in ignorance of its true meaning, if, indeed it has any meaning. The Ontario Veterinary College, like most other educational institutions, holds competitive examinations at the conclusion of each term in the various subjects embraced in its curriculum, and the successful competitors, those who obtain a high percentage of marks in their examination papers,—are held to have obtained honors in their classes and are to have their names inserted in the next catalogue of the college as having obtained such honors.

These being merely class-examinations conducted by the educators themselves, and not by the Examining Board, have of course, nothing to do with the examinations for graduation, but I am positive that it is on the strength of this questionable honor alone that some ambitious individuals have presumed to dub themselves "Honorary Graduates" of the Ontario Veterinary College. It is a mistake born of ignorance on the part of the "Honorary Graduates" themselves, and as such does not reflect

at all upon the honorable institution from which they graduated, as some of the graduates of rival colleges doubtless are only too ready to assume.

Unprofessional conduct among veterinary (and medical) practitioners of a character even more heinous than this is not by any means uncommon in this country, nor is it characteristic of the alumni of any particular college, and while the few "Honorary Graduates" of the Ontario Veterinary College may choose to subject themselves to ridicule, the numerous *ordinary* graduates of that college will continue by their conduct to guard its reputation as an institution, which, despite its railers, has probably done more for the advancement of veterinary science in America than any other institution in the land.

Respectfully,

R. ROBSON DINWIDDIE.

Evanstowm Ills., Jan. 12, 1888.

DR. A. PETERS ON PLEURO-PNEUMONIA.

TORONTO, January 13, 1888.

Editor American Veterinary Review:

SIR.—In looking through your issue for this month, I was struck with the report of a paper read by Dr. A. Peters, of Boston, before the Massachusetts Veterinary Association. The article in question is entitled, "Infectious Bovine Pneumonia." What I wish to call attention to, with your permission, is the strange, and as it appears to me, erroneous and misleading use of the terms "infectious" and "contagious," by the writer of the paper. The following are his own words as reported: "I do not know that it is a matter of record that there is an *infectious* pneumonia affecting the bovine race," etc. "Of course they were very much relieved to find that the disease was not contagious pleuro-pneumonia." "From the above we can safely conclude that this is a specific infectious lung disease, due to the presence of a small micrococcus."

As I understand it, there is not recognized nowadays any infection other than by a specific virus or contagium, which is

communicated from animal to animal, either directly by immediate contact with a diseased animal, or indirectly through contact with an infected or contagium-bearing medium. Formerly it was held, of course, that the second or indirect mode of infection was brought about by means quite different from those operating in the case of contagious disease; that the propagation of *infectious* diseases depended on a something, an influence quite different from the contagium of such disease; for example, as syphilis or small-pox. But since the discovery and attempted classification of specific disease germs, surely all that has passed away. That Dr. Peters himself does not believe in infectious diseases not propagated through a contagium, his experiments with the guinea pigs and his conclusions drawn therefrom plainly show. Is it not a pity then, that he should make such a use of terms as will be apt to produce an erroneous conception in the minds of some of his readers?

Yours truly,

JOHN CAVEN,
Ontario Veterinary College, Toronto.

ASSISTANT WANTED.

Editor American Veterinary Review:

Please insert the following in your excellent journal:

WANTED.—A graduate of a veterinary college (one that can speak German preferred). Will give him an interest in a good practice. Correspondence is solicited. Address, Post Office Box 721, Geneseo, Henry County, Illinois.

FROM DICKEY BIRD.

Editor American Veterinary Review:

In the last volume of the REVIEW was published a very interesting report of the National Veterinary Association of Great Britain, but so far the present volume does not contain any mention of their meeting of last year. The discussions certainly were

of interest enough to the profession of this country to warrant the report again being given.

How is it that we cannot have as full and interesting reports of the United States Veterinary Medical Association? Brevity may be the soul of wit, but in some cases it is a bad rule to apply.

DICKEY BIRD.

[We well approve of the request of our correspondent, but he must not ignore that our pages are often too crowded, and that if we were to make room for all material of interest, beside what we publish, the REVIEW would have to be considerably increased in size, and beyond our facilities.—ED.]

BORROWED FEATHERS AGAIN.

Editor American Veterinary Review:

DEAR SIR.—I would please call your attention to the inclosed card, which I believe is an impostor of the "Hiram A. Kennedy," type, having failed to find the name among the published list of graduates of the American Veterinary College.

Yours,

C. S. ELLIOT, D.V.S.

F. W. BARTHOLOMEW, V. S.,

(*Graduate of American Veterinary College, New York City.*)

TREATS

ALL DISEASES OF DOMESTIC ANIMALS.

HANDLER AND TRAINER OF TRACK HORSES.

Office: Chas. Prior's Livery Barn.

UNION CITY, - - - - - INDIANA.

Of course he is.—ED.]

TO TELL THE AGE OF A HORSE.

BY C. E. MARTINE.

To tell the age of any horse,
 Inspect the lower jaw, of course;
 The six front teeth the age will tell,
 And every doubt and fear dispel.

Two middle "nippers" you behold
 Before the colt is two weeks old.
 Before eight weeks two more will come;
 Eight months the "corners" cut the gum.

The outside grooves will disappear
 From middle two in just one year.
 In two years, from the second pair;
 In three, the corners, too, are bare.

At two the middle "nippers" drop;
 At three the second pair can't stop.
 When four years old the third pair goes;
 At five a full new set he shows.

The deep black spots will pass from view
 At six years from the middle two;
 The second pair at seven years;
 At eight the spot each "corner" clears.

From middle "nippers" upper jaw
 At nine the black spots will withdraw;
 The second pair at ten are white;
 Eleven finds the "corners" light.

As time goes on, the horsemen know,
 The oval teeth three-sided grow;
 They longer get, project before
 Till twenty, when we know no more.

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